

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re Patent Application of:  
Thomas Nosker et al.

Application No.: 10/501,701

Confirmation No.: 7140

Filed: May 5, 2005

Art Unit: 1765

For: COMPOSITIONS AND METHODS OF  
MAKING PLASTIC ARTICLES

Examiner: J. C. Mullis

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Commissioner for Patents  
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**DECLARATION UNDER 37 C.F.R. § 1.132  
BY THOMAS NOSKER**

I, Thomas Nosker, declare as follows:

1. I am a named inventor in the above-identified application. I received a Ph.D. in Polymer Physics in 1988 and a M.S. in Mechanics and Materials Science in 1983 from Rutgers University. I received a Bachelor of Science Degree in Mechanical Engineering from Georgia Institute of Technology in 1980.
2. Currently, I hold the position of Principal Investigator, Center for Advanced Materials via Immiscible Polymer Processing (AMIPP). I also currently hold the position of Professor, Department of Ceramic and Materials Engineering, Rutgers University.

3. I co-authored Nosker et al., *Development of a Recycled Plastic/Composite Cross Tie*, 98 Am. Railway Engineering Bulletin No. 760 (1997) and Nosker et al., *A Performance-Based Approach to the Development of Recycled Plastic Composite Cross Tie*, Proc. Society of Plastic Engineers 1998 Antec Conference, Atlanta, Ga., April 1998. I am also named as an inventor on U.S. Pat. Nos. 5,789,477; 5,916,932; and 6,191,228, all of which are referenced on page 11 of the present application. These publications and patents are evidence of my expertise in the subject matter of the invention and qualification to render the opinions expressed in this declaration.
4. I am familiar with the prosecution history of US Patent Application Serial No. 10/501,701 (the '701 application), at least to the extent that it is my knowledge that certain claims in the application have been rejected as failing to comply with the written description requirement.
5. With respect to the rejection for failing to comply with the written description requirement, my understanding is that the Examiner believes that the phrase "fiber-shaped nano-domains having a length-wise dimension aligned essentially parallel in said HDPE" is not adequately described in the originally-filed specification.
6. Figures 1 and 2 of the present application demonstrate that the polymer blend contains fiber-shaped domains having a length-wise dimension aligned essentially parallel in the HDPE.
7. Figure 1 of the present application is a scanning electron microscopy (SEM) photograph of an immiscible polymer blend of the present invention. Submitted herewith as Exhibit A is a marked-up version of the identical image in which arrows are used to point out the fiber-shaped domains having a length-wise dimension aligned essentially parallel in the HDPE.
8. Figure 2 of the present application is another scanning electron microscopy (SEM) photograph of an immiscible polymer blend of the present invention. The SEM photograph of Figure 2 was taken from a perspective perpendicular to the parallel fiber-shaped domains. Figure 2 contains lighter shaded rounded domains. The

rounded domains shown in Figure 2 are end portions of the essentially parallel fiber-shaped domains.

9. The essentially parallel fiber-shaped domains shown in Figures 1 and 2 were formed following extrusion of the polymer blend into a mold according to the preferred method referenced in the present application at, for example, page 9, lines 20-32.
10. It is the fiber-shaped domains having a length-wise dimension aligned essentially parallel in the HDPE that results in the composition having a modulus greater than the additive contribution of each polymer to overall stiffness.
11. As shown in Figure 5 of the present application, weight percent ratios of 10/90; 20/80; 30/70; and 40/60 PC/HDPE all possess a modulus greater than the additive contribution of each polymer to overall stiffness. This is the result of sufficient fiber-shaped domains having a length-wise dimension being aligned essentially parallel in the HDPE. This alignment is produced by extrusion of the blended polymers into a mold, wherein the alignment is first formed by extrusion and then retained by the mold as the blend cools. The combination of extrusion and molding is essential, and the combination is not shown in any of the publications of record.
12. I, Thomas Nosker, hereby swear that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willfully false statements and the like so made are punishable by fine or imprisonment or both under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued hereon.

Date: 6/4/12

Respectfully Submitted



Thomas Nosker

# **EXHIBIT A**

PC/PE 10/90

Parallel

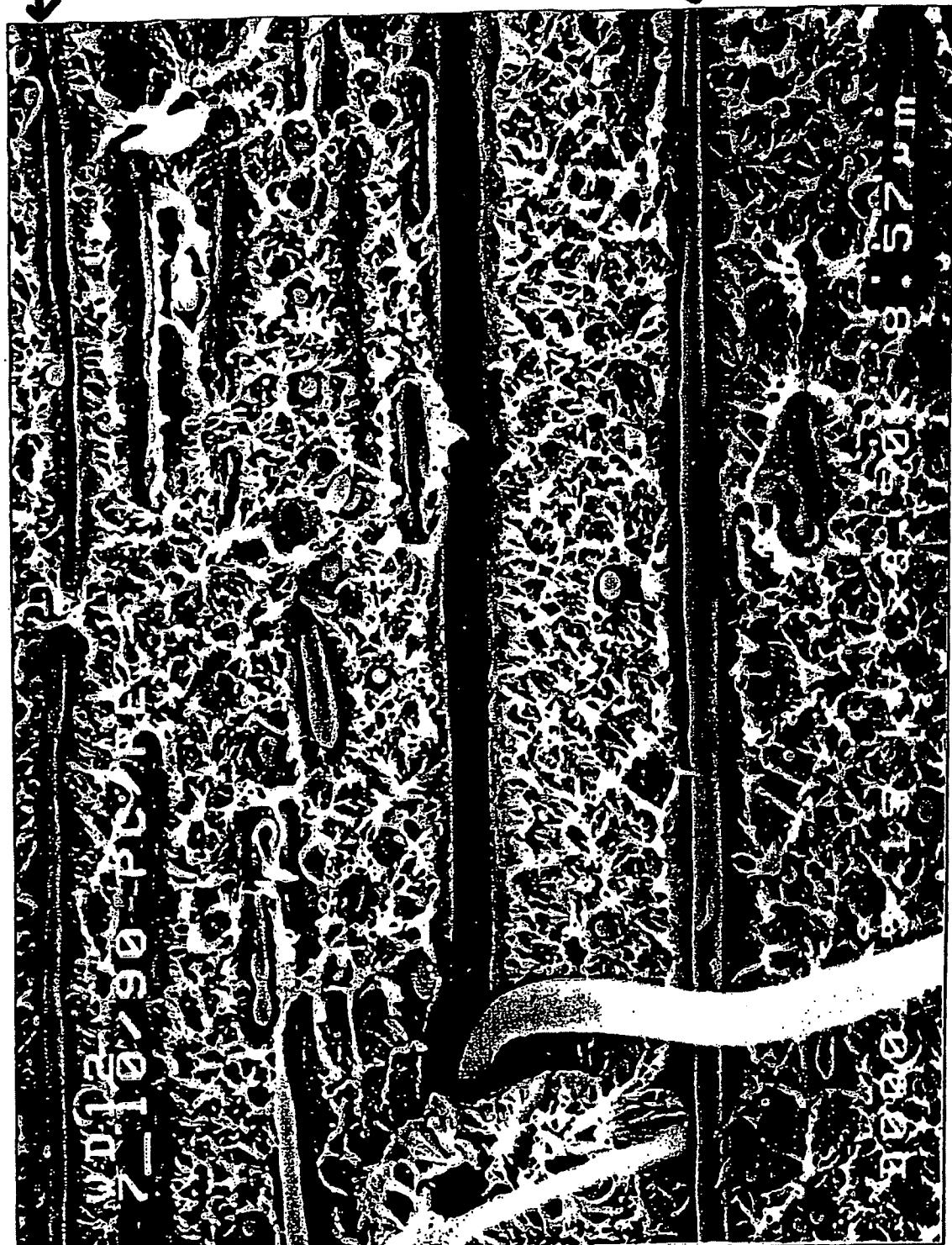


Fig. 1